

Claims

- [c1] 1. A method of sending information through a node, comprising:
- providing a node having a first access port, a second access port, a first uplink and a second uplink;
 - sending a first packet via the first access port to the node;
 - when the node is in a leaf mode, the node adding a tag inside the first packet, the tag containing a first port number corresponding to the first access port;
 - when the node is in a branch node, the node adding the first port number to the tag;
 - sending a second packet, tagged with information containing a second port number corresponding to the second access port, via the first uplink to the node;
 - the node receiving the second packet;
 - the node removing a second port number corresponding to the second access port from the tag; and
 - the node sending the second packet via the second access port.
- [c2] 2. The method according to claim 1 wherein the method further comprises providing the tag of the first packet

with a first nibble containing a port number of a previous node and a second nibble, the node shifting the port number of the previous node to the second nibble and adding the first port number to the first nibble.

- [c3] 3. The method according to claim 2 wherein the method further comprises the node adding the first port number to the first nibble.
- [c4] 4. The method according to claim 1 wherein the method further comprises providing the tag of the second packet with a first nibble containing the second port number and a second nibble.
- [c5] 5. The method according to claim 4 wherein the method further comprises the node removing the second port number from the first nibble.
- [c6] 6. The method according to claim 5 wherein the method further comprises the node moving a port number in the second nibble to the first nibble.
- [c7] 7. The method according to claim 1 wherein the method further comprises permitting the node to only forward an incoming packet received via the first or the second access port to the first uplink and the second uplink.
- [c8] 8. The method according to claim 1 wherein the method

further comprises permitting the node to only forward an incoming packet received via the first or the second uplink to the first access port or second access port.

[c9] 9. The method according to claim 1 wherein the method further comprises the node removing the tag from the second packet when the tag contains no non-zero values in first and the second nibbles.

[c10] 10. The method according to claim 1 wherein the method further comprises the node forwarding the first packet in the first uplink and in the second uplink.

[c11] 11. A method of sending information through a node, comprising:
providing a first node having a first access port, a second access port, a first uplink and a second uplink;
sending a first packet, tagged with information containing a first port number corresponding to the first access port, via the first access port to the first node;
the first node receiving the first packet and sending the first packet via the first uplink and the second uplink to network edge equipment;
sending a second packet, tagged with information containing a second port number corresponding to the second access port, via the first access port to the node;
the first node receiving the second packet; and

the first node receiving the second packet and sending the second packet via the first uplink and the second uplink to the network edge equipment.

[c12] 12. The method according to claim 11 wherein the method further comprises connecting the first uplink to a first router and connecting the second uplink to a second router.

[c13] 13. The method according to claim 12 wherein the method further comprises sending the first packet in the first uplink to the first router and in the second uplink to the second router.

[c14] 14. The method according to claim 11 wherein the method further comprises connecting the first uplink to a first router and connecting the second uplink to a second node.

[c15] 15. The method according to claim 14 wherein the method further comprises sending the first packet via the first uplink to the first router and sending the first packet via the second uplink to the second node.

[c16] 16. The method according to claim 15 wherein the method further comprises the second node receiving the first packet from the first node and sending the first packet via a first uplink of the second node to a router

connected to the first uplink of the second node.

- [c17] 17. The method according to claim 11 wherein the method further comprises preventing the first node from forwarding the first packet, received via the first access port, to the second access port of the first node.
- [c18] 18. The method according to claim 14 wherein the method further comprises connecting the second uplink of the first node to a second uplink of the second node.
- [c19] 19. The method according to claim 11 wherein the method further comprises the first node forwarding all valid packets received in the first access port to the first uplink and the second uplink and forwarding all valid packets received in the second access port to the first uplink and the second uplink.